CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 87-10
NPDES NO. CA0005789

AMENDING WASTE DISCHARGE REQUIREMENTS FOR:

SHELL OIL COMPANY
MARTINEZ MANUFACTURING COMPLEX
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. On February 20, 1985 the Board adopted Order No. 85-22, a National Pollutant Discharge Elimination System (NPDES) Permit, prescribing waste discharge requirements for Shell Oil Company, Martinez Manufacturing Complex (hereinafter called the discharger).

2. Order No. 85-22 included an interim effluent limit for toxicity and a time schedule to achieve compliance with the Basin Plan toxicity limit by August 20, 1986. The Basin Plan toxicity limitation requires that "the survival of test fishes in 96 hour bioassays of the undiluted effluent shall be a 90 percentile value of not less than 50 percent survival." The interim effluent toxicity limitation requires that "the survival of test fishes in 96 hour bioassays of 50 percent effluent shall be a 90 percentile value of not less than 50 percent survival."

3. According to the Basin Plan exceptions to the toxicity limitation may be granted and revised toxicity requirements established if the following conditions are met:

   1) The waste is discharged through a deepwater outfall which achieves rapid and high initial dilution;

   2) The toxicants in the waste are nonconservative constituents which rapidly decay in the receiving water, or they are conservative constituents for which water quality objectives have been established. Effluent mass emission rates may be established for such nonconservative constituents; and

   3) A thorough investigation has determined that such an exception will not adversely affect resident and/or migratory fish or other aquatic life.

4. On August 19, 1986 the discharger submitted an application for an exception to the toxicity limitation.

5. On August 20, 1986, the Board adopted Order No. 86-60 amending waste discharge requirements Order No. 85-22. The amendment consisted of extending the time schedule for compliance with the Basin Plan toxicity limit from August 20, 1986 to December 20, 1986.

6. On December 20 1986, the Board adopted Order No. 86-91 amending waste discharge requirements Order Nos. 85-22 and 86-60. The amendment consisted of extending the time schedule for compliance with the Basin Plan toxicity limit from December 20, 1986 to February 18, 1987.

7. The information submitted to date in the dischargers application for an exception to the toxicity limitation does not satisfy the conditions for exception nor justify a revised toxicity limitation. The imposition of the toxicity limit below shall not prejudice the Board from consideration of future modification of the limit should the discharger demonstrate to the satisfaction of the Board that the requirements of the Basin Plan exception provisions have been met.

8. As this project is an NPDES Permit revision, this Board, pursuant to Water Code Section 13389, is not required to comply with the provisions of Chapter 3 of Division 13 of the Public Resources Code (California Environmental Quality Act).

9. The Board has notified the discharger and interested persons and agencies of its intent to prescribed revised waste discharge requirements for the discharger.

10. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that this Board's Order Nos. 85-22 and 86-91 are amended as follows:

1. Order No. 86-91 is hereby rescinded.

2. Effluent limitation A.5 of Order No. 85-22 is revised to read as follows:

   In representative samples of the effluent, the discharge of Waste 001 shall meet the following limit of quality:

   TOXICITY:

   The survival of test fishes in 100 percent effluent shall achieve a 90 percentile value of not less than 50 percent survival based on any ten consecutive samples.

3. The self-monitoring program for Order No. 85-22 shall be revised according to the attached amended self-monitoring program.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on February 18, 1987.

ROGER B. JAMES
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

AMENDED

SELF-MONITORING PROGRAM
FOR

SHELL OIL COMPANY

MARTINEZ MANUFACTURING COMPLEX

CONTRA COSTA COUNTY

NPDES NO. CA0005789

ORDER NO. 85-22

CONSISTS OF

PART A, dated 1/78

AND

PART B

PART B

Shell Oil Company

I. DESCRIPTION OF SAMPLING STATIONS

A. EFFLUENT

Station	Description
E-001	At a point in the outfall from the Waste 001 treatment facilities to the discharge point, at which all waste tributary to thereto is present.
E-001-D	At any point downstream from the disinfection facilities for the refinery sanitary sewage, at which all such sewage is present and adequate disinfection is assured.
E-002	At the point of discharge from the retention pond(s) for Waste 002.
E-003	At the point of discharge from the retention pond(s) for Waste 003.
E-004	At any point in the outfall from the treatment facilities for Waste 004.
E-005	At any point in the outfall from the treatment facilities for Waste 005.
E-006	At the point of discharge from the retention pond(s) to the tidal channel which flows to Carquinez Strait.
E-007	At the point of discharge of Waste 007 to the drainage course about 3000-feet west of the MVSD sewage treatment plant.

B. RECEIVING WATERS

Station	Description
C-0	Located over the center of the diffuser.
C-1	At the north face of the wharf, 75-feet NW from diffuser.

C-2	At the inshore side of the north apron of the diffuser.
C-3	At the south face of the wharf, 75 feet NE from the diffuser.
C-4	At the north face of the wharf, at the westerly end of Berth NO. 1.
C-5	At the center of the wharf, at the westerly end of Berth NO. 1.
C-6	At the south face of the wharf, at the westerly end of Berth NO. 1.

Station	Description
C-R1	At a point, in Carquinez Strait, located at the upstream (northeasterly) end of Shell Oil Company wharf.
C-R2	At a point, in Carquinez Strait, located at the downstream (southwesterly) end of Shell Oil Company wharf.

II. MISCELLANEOUS REPORTING

A. The discharger shall record the rainfall on each day of the month.

B. The discharger shall determine the stormwater runoff/ ballast water allocation(daily & monthly) for its discharge using the method described in attached Form A. Form A shall be submitted with the monthly self-monitoring report. The daily maximum allocation must be computed for each day Waste 001 is monitored.

C. The discharger shall retain and submit (when required) the following information concerning the monitoring program for organic and metallic pollutants.

   a. Description of sample stations, times, and procedures.

   b. Description of sample containers, storage, and holding time prior to analysis.

   c. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

D. The discharger shall submit in the monthly self-monitoring report the metallic & organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutants) peaks detected in the EPA 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at $\leq$ 10 ug/l based on the nearest internal standard may be appropriately grouped and identified together as aliphatic hydrocarbons, aromatic hydrocarbons, and unsaturated hydrocarbons. All other hydrocarbons detected at >10 ug/l based on the nearest internal standard shall be identified and semi-quantified.

   Note that you may submit your metallic monitoring results in your regular self-monitoring reports or in a separate report within thirty days of the end of each month, as long as you indicate in your regular monthly monitoring report that the metals results will be reported in this separate report.

E. Ballast water treated and discharged as part of Waste 001 shall be metered and the volume recorded in the self-monitoring report for each calendar day. The 30-day average shall be the sum of the daily values in a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water, determined above by the appropriate concentration listed under Effluent Limitation A.2. in the permit.

III. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given in Table 1 (attached).

B. Sample collection, storage, and analysis shall be performed according to the latest 40 CFR Part 136 or othermethods approved and specified by the Executive Officer of this Regional Board.

IV. MODIFICATIONS TO PART A

Exclude paragraph E.4.

I, Roger B. James, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No.73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No.85-22.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer or Regional Board.

ROGER B. JAMES
EXECUTIVE OFFICER

Attachments:
Table 1
Form A

Effective Date March 1, 1987

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001 and E-006 (10)			E-001 D	E-002 thru 005		All C	E-007				
TYPE OF SAMPLE	Cont	C-24	G	G	G		G					
Flow Rate (mgd)	Cont											
BOD, 5-day, 20°C, & COD (mg/l & kg/day)	W											
Chlorine Residual & Dosage (mg/l & kg/day)			W									
Settleable Matter (ml/l-hr. & cu. ft./day)			W									
Total Suspended Matter (mg/l & kg/day)		W										
Oil and Grease (mg/l & kg/day)			W(1)		(1E)			E(11)				
Coliform (Total or Fecal) (MPN/100 ml) per req't				2/W								
Fish Toxicity	W(3)											
Ammonia Nitrogen (mg/l & kg/day)		W										
pH (units)	Cont(2)				(1E)		M	E(11)				
Dissolved Oxygen (mg/l and % Saturation)							M					
Temperature (°C)	Cont						M					
Sulfides Total (mg/l)			W									
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)							M(4)					
Arsenic (mg/l & kg/day)		2M										
Cadmium (mg/l & kg/day)		2M										
Chromium, Total (mg/l & kg/day)		W										
Copper (mg/l & kg/day)		W										
Cyanide (mg/l & kg/day)		W										
Silver (mg/l & kg/day)		2M										
Lead (mg/l & kg/day)		W										
ALUMINUM (mg/l & kg/day)		M										
COBALT (mg/l & kg/day)		M										

TABLE 1 (continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001 and E-006 (10)			E-002 thru 005			All C	E-007						
TYPE OF SAMPLE	C-24	G		G			G							
Mercury (mg/l & kg/day)	2M													
Nickel (mg/l & kg/day)	W													
Vanadium (mg/l + kg/day)	W													
Zinc (mg/l & kg/day)	W													
Phenolic Compounds (mg/l & kg/day)	W													
All Applicable Standard Observations				E (11)				E (11)						
Soluble BOD (mg/l)	W (9)													
Total Ident. Chlor. Hydrocarbons (mg/l & kg/day)														
Total Organic Carbon (TOC)				E (11)				E (11)						
Hexavalent Chromium	W													
Unionized Ammonia (as N)							M							
Selenium (12)	W													
Volatile Organics (5)		2Y (7)												
Acid Base/Neutral Organics (6)		2Y (7)												
Polynuclear Aromatic Hydrocarbons (8)	M													

LEGEND FOR TABLE 1

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample - 24-hour
Cont = continuous sampling
O = observation

TYPES OF STATIONS

I = intake stations
E = waste effluent stations
C = receiving water stations
B = bottom sediment stations

FREQUENCY OF SAMPLING

E = each occurence
D = once each day
W = once each week
2/W = 2 days per week
M = once each month
2M = every 2 months
Y = once each year
2Y = twice each year
cont = continuous

FOOTNOTES FOR TABLE 1

(1) Oil and grease sampling shall consist of 3 grab samples taken at 2 hour intervals during the sampling day, with each grab being collected in a glass container. The entire volume of each sample shall be composited prior to analysis. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite wastewater sample for extraction and analysis.

(2) Daily minimum and maximum shall be reported.

(3) The discharger shall determine compliance utilizing flow-through bioassays. Immediately upon the death of over half the test fish, the LC-50 of the discharge shall be determined using at least 4 dilutions in a static bioassay.

(4) Receiving water analysis for sulfides should be run when dissolved oxygen is less than 5.0 mg/l.

(5) Volatile Organic Toxic Pollutants shall be analyzed using EPA Method 624 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.

(6) Acid and Base/Neutral Extractable Organic Toxic Pollutants shall be analyzed using EPA Method 625 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.

(7) Grab samples shall be collected coincident with samples collected for the analysis of the regulated parameters. In addition, the grab samples must be collected in glass containers.

(8) Polynuclear Aromatic Hydrocarbons shall be analyzed using EPA Method 610 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. Note that the samples must be collected in amber glass containers. These samples shall be collected coincident with samples collected for the analysis of the regulated parameters. An automatic sampler which incorporates glass sample containers and keeps the samples refrigerated at 4 C and protected from light during compositing may be used. Note that the 24-hour composite samples may consist of eight grab samples collected at three-hour intervals. The analytical laboratory shall remove flow-proportioned volumes from each sample vial or container for the analysis.

(9) Soluble BOD is defined here as the 5-day, 20^{o}C BOD of filtrate that passes through a standard glass fiber filter as described in Standard Methods for the Examination of Water and Wastewater, 15th Edition, Part 209 B., APHA, AWWA, WPCF, (1980).

(10) Take samples of Waste 006 only during emergency periods when discharge of Waste 006 occurs.

(11) Stormwater-runoff sampling shall consist of a single grab sample during the first hour of runoff from the first storm of each calendar month.

(12) Selenium must be analyzed only by the atomic absorption, gaseous hydride procedure (EPA Method No. 270.3/ Standard Method No. 303 E).

FORM A

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

This procedure uses a bankbook to inventory stormwater. Any stormwater in excess of the estimated processed stormwater is inventoried. Stormwater allocations are calculated using the actual processed stormwater developed in the attached table.

Definitions:

Dry Weather Season - The months of June to September exclusive of a one-week period following any rainstorm.

Estimated Dry Weather Process Wastewater Flow - The average effluent flowrate during the previous dry weather season.

Stormwater Runoff - The product of the inches of rainfall and the runoff factor.

Estimated Processed Stormwater - The difference between the actual effluent flowrate and the ballast water plus dry weather flowrate.

Stormwater Bankbook - Calculated inventoried stormwater.

Actual Process Stormwater - If the stormwater bankbook is not zero, the actual processed stormwater equals the estimated flow. If the bankbook is zero, the actual processed stormwater is equal to the stormwater runoff for that day plus the bankbook for the previous day.

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	Rainfall (in.)	Stormwater Runoff (MGal/D)	Effluent Flow (MGal/D)	Dry Weather Effluent Flow (MGal/D)	Estimated Processed Stormwater (MGal/D)	Stormwater Bankbook (MGal)	Actual Processed Stormwater (MGal/D)	Ballast Water (MGal/D)
				Previous Month's Bankbook=				
1								
2								
3								
.								
.								
.								
30								
TOTAL								
AVERAGE								
MAXIMUM								

Column (B) = Column (A) X Runoff Factor

Column (E) = Column (C) - Column (D) - Column (H).

Column (F): Column (F) = Column (F)(Previous Day) + Column (B) - Column (E).
Column (F) = 0 if Column (F) <0.

Column (G): If Column (F) >0, then Column (G) = Column (E).
If Column (F) = 0, then Column (G) = Column (B) + Column (F) previous day.

DATE	MAXIMUM DAILY LIMITS						
	BOD (KG/D)	TSS (KG/D)	(KG/D)	O&G (KG/D)	PHENOL (KG/D)	TOTAL CHROME (KG/D)	HEX. CHROME (KG/D)

Maximum Daily Limit = Effluent Limit A.1. (Daily Max in kg/day) + Stormwater Allocation (Daily Max)

Stormwater Allocation= Effluent Limit A.2. (Daily Max in mg/l) + Daily Processed Stormwater (in mgd)

Date	Rainfall (Inches)	Storm Runoff Flow (Inches x Runoff Factor = Gallons	Ballast Flow in gallons
1-2			
2-3			
3-4			
4-5			
5-6			
6-7			
7-8			
8-9			
9-10			
10-11			
11-12			
12-13			
13-14			
14-15			
15-16			
16-17			
17-18			
18-19			
19-20			
20-21			
21-22			
22-23			
23-24			
24-25			
25-26			
26-27			
27-28			
28-29			
29-30			
30-31			
31-1			
Total			
Monthly Average			

MONTH:

YEAR:

A.1. Total Effluent Limitation (Kg/day)

Monthly Average Allocation Factor + Effluent Limits = Limit (Kg/day)

Storm Runoff+Ballast Water Flow (expressed in thousand Gals/day x (kg /1000 Gals.) = (kg /day) (kg /day)

30-Day Average Limitation (Kg/day)							
	BOD_5	x	0.098 =	+	=		
	TSS	x	0.079 =	+	=		
	TOC	x	0.22	+	=		
	COD	x	0.68 =				
	O&G	x	0.03 =	+	=		
	PHENOL	x	0.00064 =	+	=		
	TOTAL CHROME	x	0.00079 =	+	=		
	HEX CHROME	x	0.00011 =	+	=		